

**IN THE UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TENNESSEE
at Chattanooga**

ZECO, LLC, d/b/a ZEE COMPANY,)

)

Plaintiff/) **No 1:21-cv-00079**

Counterclaim Defendant)

v.)

)

ENVIRO TECH CHEMICAL)

SERVICES, INC.,) **JURY TRIAL DEMANDED**

)

Defendant/)

Counterclaimant)

**ENVIRO TECH CHEMICAL SERVICES, INC.’S OPENING CLAIM CONSTRUCTION
BRIEF**

I. INTRODUCTION

Enviro Tech Chemical Services, Inc.’s (“Enviro Tech”) claim construction approach resolves the disputes relevant to infringement and validity by clarifying the scope of the disputed claim terms. Enviro Tech proposes constructions that are consistent with the plain and ordinary meaning as understood by a person of ordinary skill in the art at the time of the invention (“POSITA”) for each of the four claim terms still in dispute. The testimony of Enviro Tech’s expert, Dr. Herring, demonstrates that Defendant’s proposed constructions are consistent with the claim language and the specification, and, where relevant, the prosecution history.

In contrast, Zee proposes constructions that (1) improperly import limitations into the claim term, (2) are inconsistent, or (3) avoid proposing a claim construction altogether.

II. RELEVANT FACTS

A. Technological Background of Poultry Processing

Contamination of poultry carcasses with unwanted microorganisms has always been a major concern for poultry processing plants. Poultry meat from healthy chickens does not inherently have microorganisms present; microorganisms typically arrive on or in the meat through processing contamination such as contaminated water, contaminated surfaces, and gastrointestinal contamination. (Ex. A at ¶ 24.)¹ Microorganisms of particular concern include species of *Salmonella* and *Campylobacter*, as well as *Escherichia coli*. *Id.* Contamination typically occurs during slaughter, when microbes resident in the gut of the poultry come into contact with the exterior surface. *Id.*

Poultry processors therefore use antimicrobial agents and refrigeration to control microbial growth. A common poultry processing method that combines the use of antimicrobial agents and refrigeration is known as immersion chilling. “[S]ubmersion in large chilled water baths[, i.e., immersion chilling,] is the allowed and preferred method for the rapid reduction in carcass temperature after evisceration.” (Ex. D at 2:44-47; Ex. A at ¶¶ 25-29.) Federally mandated guidelines require that the poultry carcasses must be rapidly chilled to a temperature below 40° F. (Ex. E at 3:31-35; Ex. A at ¶¶ 25-29.) To control cross-contamination in these “chiller tanks,” specialized chemistries like peracetic acid (PAA) are added to kill and reduce the number of unwanted microorganisms. (Ex. D at 2:48-64; Ex. A at ¶¶ 25-29.)

In large facilities, a continual flow of poultry carcasses is fed into the lead-in section of a large chiller tank. (Ex. E at 3:37-42; Ex. A at ¶¶ 29-32.) The poultry carcasses are then continually

¹ As explained in Ex. A, Dr. Herring testified that the level of skill in the art would define a POSITA to be a person with a bachelor’s of science in a relevant field with 5-7 years’ experience, a master’s degree in a relevant field with 3-5 years’ experience, or a Ph.D in a relevant field. (Ex. A at ¶¶ 40-41.)

moved through the chiller tank by, e.g., an auger or large paddles. (Ex. E at 3:43-59; Ex. A at ¶¶ 29-32.) Such operations typically utilize multiple separate chiller tanks connected in series so that the poultry carcasses are subjected to cleaner and cleaner water. (Ex. E at 3:60-67; Ex. A at ¶¶ 29-32.) Water carryover on the poultry carcass surface from one tank to another lower chiller tank water levels, requiring recirculation of “make up water” from downstream tanks. (Ex. E at 4:18-40; Ex. A at ¶¶ 29-32.) The continuous process runs for several hours. (Ex. E at 4:49-61; Ex. A at ¶¶ 29-32.)

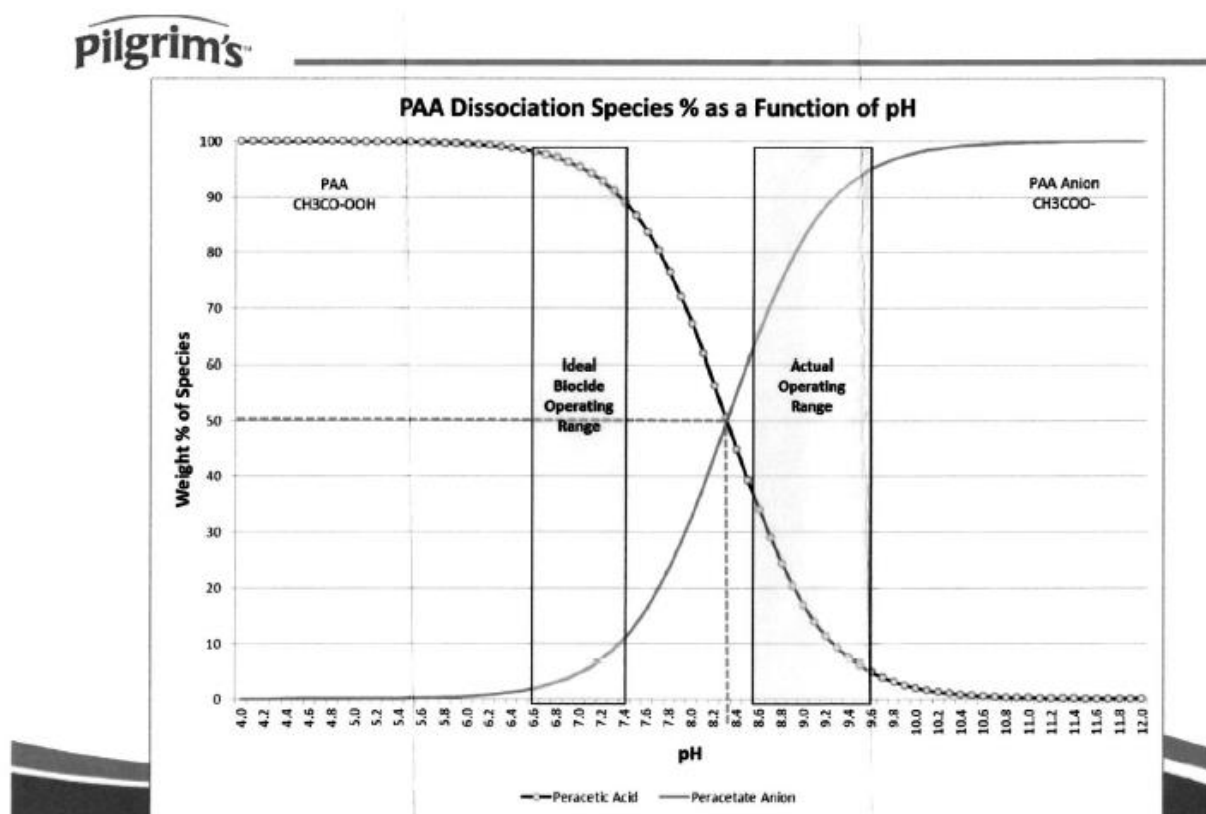
The '321 patent discusses this process in the context of experimental trials performed at a “major U.S. processor of poultry.” (Ex. B at 58:10-60:24 (Example 24); Ex. A at ¶ 31.) For example, the '321 patent notes that the plant typically processes about 200,000 or more birds for five days a week. (Ex. B at 58:23-24; Ex. A at ¶ 31.) It also describes the plant’s procedure as implementing a contact time, i.e., a time during which the poultry is immersed in an antimicrobial solution, of 70 minutes. (Ex. B at 58:33-35; Ex. A at ¶ 31.)

Immersion chilling process described above is typical of that used by large U.S. poultry processors. (Ex. A at ¶ 32.)

USDA guidelines require that poultry processing facilities maintain Hazard Analysis and Critical Control Point (“HACCP”) plans. These plans provide a systematic, preventative process that relies on the control of physical, chemical, and biological hazards rather than finished product inspection to ensure food safety. (Ex. E at 5:35-45; Ex. A at ¶ 33.) Key production steps, known as Critical Control Points (“CCPs”), are monitored to reduce or eliminate the risk of hazards potentially present, including during the chilling process. (Ex. E; Ex. A at ¶ 33.) Notably, a CCP is a point where the loss of control creates an unsafe situation for the food. Examples of where

CCPs being mitigated or reduced are through the use of antimicrobial concentrations, pH modifications, temperature (high or low). (Ex. A at ¶ 33).

Poultry processing facilities have a set pH that they maintain in compliance with their filed HACCP plans and other USDA regulations. As an acid, equilibrium PAA has a pH below 7. (Ex. A at ¶¶ 33-34.) Thus, if a poultry processor wishes to have a set point with an alkaline pH (e.g., 8), as claimed in the '321 patent, a poultry processor must add an alkaline source to raise the pH of the PAA-containing water. Because the PAA dissociates in water both as a function of pH and as part of the antimicrobial process, fresh PAA must be added to maintain effective concentrations. An example of the dissociation curve for PAA as a function of pH is shown below:



B. Overview of the '321 Patent

The '321 patent claims methods for this continuous monitoring and control of pH in poultry processing, such as in chill tanks, so that the poultry processor can operate at the alkaline set point.

For example, Claim 1 describes a method wherein the pH of peracetic-containing water in a reservoir, such as a chill tank, is determined and then altered to a pH of about 7.6 to about 10. (Ex. B at 61:31-58.) For purposes of claim construction only, claim 1 is representative:

1. A method of treating at least a portion of a poultry carcass with peracetic acid, said method comprising the steps of:

[a] providing, in a reservoir, a peracetic acid-containing water, wherein the peracetic acid-containing water comprises water and an antimicrobial amount of a solution of peracetic acid;

[b] after the step of providing the peracetic acid-containing water, [sic] determining the pH of the peracetic acid-containing water, and altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10 by adding an alkaline source;

[c] after the step of determining the pH and altering the pH of the peracetic acid-containing water, placing into the peracetic acid-containing water at least a portion of a poultry carcass;

[d] after the step of placing at least the portion of the poultry carcass into the peracetic acid-containing water, determining the pH of the peracetic acid-containing water in the reservoir with at least the portion of the poultry carcass therein, and altering the pH of the peracetic acid-containing water to a pH of about 7.6 to about 10 by adding an alkaline source; and

[e] after the step of determining the pH and altering the pH of the peracetic acid-containing water having at least the portion of the poultry carcass therein, removing at least the portion of the poultry carcass from the peracetic acid-containing water.

The specification discloses embodiments of this method for testing and commercial operation. To provide further benefits to poultry processors, the '321 patent discloses that the method may be operated continuously, making it compatible with the industry standard immersion chilling processes currently used to process poultry. (Ex. B at 37:63-38:3.) Similarly, the specification also discloses that various aspects of the method may be automated. (Ex. B at 37:63-38:16.)

Other aspects of the specification are similarly permissive based on the various approaches taken across the industry. For example, when discussing monitoring the pH, the specification states that pH may be determined by “any method,” and lists both direct and indirect industry standard methods as exemplary methods. (Ex. B at 34:32-34.) The specification also uses broad language to discuss an “antimicrobial amount” and then provides the range used during Applicant’s own testing of the invention. (Ex. B at 30:8-14.)

III. RELEVANT LEGAL STANDARDS

The fundamental purpose of a patent is to give the public notice of that in which the inventor claims exclusive rights. *Oakley Inc. v. Sunglass Hut Int’l*, 316 F.3d 1331, 1340 (Fed. Cir. 2003). Thus, the focus of claim construction is ascertaining how a skilled artisan would interpret the actual claim language. *Id.* at 1340–41. Claim construction is a question of law to be decided by the court. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). In determining the proper construction of a claim, the Court reviews both intrinsic and extrinsic evidence, placing emphasis on the former.

Intrinsic evidence of claim meaning consists of the claim language, patent specification, and prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). “[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314 (citing *Vitronics*, 90 F.3d at 1582). The terms used in the claims are generally given their “ordinary

and customary meaning.” *Phillips*, 415 F.3d at 1312. In addition, “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.* at 1314. The court ultimately strives to construe claims such that the dependent claims are not “meaningless.” *Baxalta Inc. v. Genentech, Inc.*, 972 F.3d 1341, 1346 (Fed. Cir. 2020). The specification is also “always highly relevant to the claim construction analysis.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 978). Because the patent is examined as a whole, the Court assumes that claim terms will normally be used consistently throughout the patent, and, thus, the meaning of a term used in one claim can illustrate the meaning of that same term used elsewhere in the patent. *Id.* at 1316. The Court may also consider the patent’s prosecution history, which provides evidence about how the PTO and the inventor understood the invention. *Id.*

Extrinsic evidence “may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language.” *Vitronics*, 90 F.3d at 1584 (Fed. Cir. 1996). Thus, while extrinsic evidence can be useful, it is “unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Phillips*, 415 F.3d at 1319. And “a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history.” *Id.* at 1318. Ultimately, neither party is entitled to a claim construction “divorced” from the context of the intrinsic evidence. *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1320 (Fed. Cir. 2016).

Terms critical to a case must be construed “to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Science & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). As the Federal Circuit has explained:

A determination that a claim term “needs no construction” or has the “plain and ordinary meaning” may be inadequate when a term has more than one “ordinary” meaning or when reliance on a term’s “ordinary” meaning does not resolve the parties’ dispute. In this case, for example, the parties agreed that “only if” has a common meaning, but then proceeded to dispute the scope of that claim term, each party providing an argument identifying the alleged circumstances when the requirement specified by the claim term must be satisfied (e.g., at all times or during steady state operation). In this case, the “ordinary” meaning of a term does not resolve the parties’ dispute, and claim construction requires the court to determine what claim scope is appropriate in the context of the patents-in-suit.

O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1361 (Fed. Cir. 2008) (collecting cases construing “board,” “golden brown,” “cover,” “included,” “attachment,” and “removable”). Deferring to “plain and ordinary meaning” may be insufficient where the claim term is open to interpretation of more than one meaning, and, where a dispute exists as to its meaning, will likely lead to another *Markman* dispute later.

IV. ARGUMENT

Zee seeks not to ascertain how a POSITA would have interpreted the actual claim language but to twist the claim language to suit its litigation strategy. Federal Circuit precedent makes it clear that treating the claims “like a nose of wax which may be turned and twisted in any direction” is “an evasion of the law” when doing so construes the claims “in a manner different from the plain import of [the] terms.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004) (quoting *White v. Dunbar*, 119 U.S. 47, 51–52 (1886)).

Zee’s approach to claim construction is improper. In some cases, Zee’s proposed constructions seek to improperly limit the claims by creating new limitations in the disputed terms and at times are scientifically inaccurate.

In contrast, Enviro Tech’s proposed constructions focus on the surrounding claim language and relevant examples from the specification, resulting in constructions that comport with the plain and ordinary meaning of the disputed terms. Enviro Tech’s proposed constructions clarify the

scope of the disputed terms by reducing the ambiguity inherent in written language. In doing so, Enviro Tech’s proposed constructions provide a framework for the parties’ experts to educate the factfinder on issues regarding infringement and validity. The Court should adopt Enviro Tech’s proposed constructions.

A. “antimicrobial amount”

Enviro Tech’s Proposed Construction	Zee’s Proposed Construction
Plain and ordinary meaning: an amount sufficient to eradicate or reduce microorganisms	Between about 0.54 ppm and about 99 ppm

The term “antimicrobial amount” is an accepted term within the microbiology field with a well understood meaning based on its stated function: “an amount sufficient to eradicate or reduce microorganisms.” (Ex. A at ¶ 46.) The intrinsic evidence is consistent with that meaning. First, the specification itself explains that an “antimicrobial amount” is an amount sufficient “to eradicate or reduce any pathogenic or spoilage microorganisms” and does not recite an exclusive range. Second, the dependent claims’ recitation of a particular range indicates that applicants knew how to claim narrower scope with a particular range, but applicants intentionally chose broader functional language in the independent claims. Third, during prosecution, the Examiner rejected claims reciting an “antimicrobial amount” over prior art disclosing 100 ppm to 2000 ppm, evidencing an understanding that the term was being used functionally. Federal Circuit precedent counsels against construing functional terms as requiring numerical ranges. *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1383–84 (Fed. Cir. 2003); *see also Conoco, Inc. v. Energy & Environmental Int’l, L.C.*, 460 F.3d 1349, 1358 (Fed. Cir. 2006) (“[W]hen a claim term is expressed in general descriptive words, [the court] will not ordinarily limit the term to a numerical range that may appear in the written description or in other claims.” (quoting *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998))).

Here, the plain language of “antimicrobial amount” as used in the claims connotes a functional meaning to a POSITA, i.e., an amount that functions to eradicate or reduce microorganisms. (Ex. A at ¶¶ 47-51.) As explained by Dr. Herring, the specific amount of an antimicrobial agent necessary to be an antimicrobial amount varies drastically based on water hardness, water temperature, pH of water before the addition of antimicrobial agents, time of exposure, level of solids, level of microbial load, organic material concentration, and many other parameters. (Ex. A at ¶¶ 50-51.) For this reason, the specification specifically states that “[t]he amount of PAA that is used depends on the microbiological condition of the carcasses.” (Ex. B at 30:12-14; Ex. A at ¶ 50.) Enviro Tech’s proposed construction captures this general, functional definition. (Ex. A at ¶¶ 46.)

When read as a whole, the intrinsic evidence supports this functional construction. The specification explains that:

“An antimicrobial amount of PAA is used. The amount is sufficient to prevent cross-contamination of bacteria between the poultry carcasses and to eradicate or reduce any pathogenic or spoilage microorganisms still resident on the carcasses. The amount of PAA that is used depends on the microbiological condition of the carcasses, but is about 0.54 ppm to about 99 ppm.”

(Ex. B at 30:7-14, 33:29-36.) The disclosure’s focus is on the general function behind an antimicrobial amount, namely that an antimicrobial amount is “[t]he amount [] sufficient to prevent cross-contamination of bacteria between the poultry carcasses and to eradicate or reduce any pathogenic or spoilage microorganisms still resident on the carcasses.” (Ex. B at 30:7-14.) As the specification recognizes, this can vary widely based on different, unpredictable factors. (Ex. B at 30:7-14.) In addition to the conditions above, parameters such as carcass contamination, proximity to different light sources, humidity, overrun of water, and where the measurement of concentration is taken in the reservoir can all affect the reading of the PAA concentration. (Ex. A at ¶¶ 50-51.)

For this reason, most of the disclosure references the functional term: “antimicrobial amount.” The specification’s disclosure of the range, which appears to be the basis for Zee’s construction, does not seek to limit the claim term but is describing the typical range of the antimicrobial amount during Enviro Tech’s testing. A POSITA would have viewed the disclosed range as exemplary rather than limiting. (Ex. A at ¶¶ 50-52.)

The claims follow the same structure as the specification, using the “general descriptive words” of “antimicrobial amount” in the independent claims and then using a specific range in the narrower dependent claims. “An independent claim impliedly embraces more subject matter than its narrower dependent claim.” *Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007). In the ’321 patent, dependent claims 4, 13, 20, 25, and 30 recite “about 1 ppm to 99 ppm.” Had the applicant wished to limit the term “antimicrobial amount” to a specific range, the applicant would have recited that range in the independent claims instead of using the functional language of “antimicrobial amount.” A POSITA would have understood from the structure of the claims that “antimicrobial amount” takes the functional meaning based on the “general descriptive words” rather than a numerical meaning. Ex. A at ¶¶ 47-49; *cf. Conoco*, 460 F.3d at 1358 (quoting *Renishaw*, 158 F.3d at 1249).

The examiner and applicants proceeded through prosecution with this same understanding. Because “the prosecution history provides evidence of how the PTO and the inventor understood the patent,” it can “inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention.” *Phillips*, 415 F.3d at 1317. Here, in a rejection dated September 16, 2014,² the examiner rejected all claims based on

² The same rejection was maintained in rejections based on Kurschner on January 27, 2015; July 15, 2015; June 8, 2016. (Ex. C at 350, 396, 415-416.) Even in the first Notice of Allowance, the examiner maintained that Kurschner disclosed the antimicrobial amount. (Ex. C at 632–33.)

U.S. Patent No. 5,632,676 (“Kurschner”), citing a teaching of “peracetic acid solution containing from 100 to 2000 ppm peracetic acid” as meeting an “antimicrobial amount.” (Ex. C at 302; Ex. A at ¶¶ 53). Applicant did not contest this characterization because applicant similarly understood “antimicrobial amount” to be broader than the exemplary range in the specification. Indeed, by the last final rejection, dated July 9, 2019, the examiner no longer pointed to specific ranges of PAA concentration to maintain a rejection of the claims, instead citing to general disclosures of PAA being used as an antimicrobial agent. (Ex. C at 1143; Ex. A at ¶ 53.)

Adoption of Zee’s proposed construction would contravene Federal Circuit precedent counseling against the importation of numeric ranges where a claim recites functional elements. *Geneva*, 349 F.3d at 1383–84 (rejecting the district court’s construction that imported “50 mg to 500 mg” from the specification because “synergistically effective amount” is “a functional limitation [that] covers all embodiments performing the recited function”); *see also Conoco*, 460 F.3d at 1358 (rejecting infringer’s argument that “the district court misconstrued the term ‘water-alcohol mixture’ because it did not limit the term composition to at least 30 percent water as described in the specification”); *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1302–03 (Fed. Cir. 2006) (rejecting the district court’s construction limiting “therapeutically effective” to products that had at least one of the in vivo effects listed in the specification). Nothing in the intrinsic evidence supports limiting “antimicrobial amount to a range. Absent strong evidence to the contrary, the Court should construe “antimicrobial amount” based on the functional, generally descriptive meaning. *Id.*

The Court should adopt Enviro Tech’s proposed construction articulating the plain and ordinary meaning: “an amount sufficient to eradicate or reduce microorganisms.”

B. “determining the pH of the peracetic acid-containing water”

Enviro Tech’s Proposed Construction	Zee’s Proposed Construction
Plain and ordinary meaning: determining the pH of the peracetic acid-containing water by any method	Measuring the acidity or alkalinity of the peracetic-acid containing water in the reservoir

1. Enviro Tech’s proposed constructions are consistent with the disclosure of the ’321 patent.

“Determining the pH of the peracetic acid-containing water” should be construed to capture the numerous standard procedures for determining a pH, both direct and indirect. The claims and specification make clear that this step is intended to ascertain the pH of the peracetic-acid containing water, and any method is acceptable. The specification discloses that the pH may be determined “by any method,” listing “a glass electrode, indicator solutions, and pH test strips.” (Ex. B at 32:46–49). Indicator solutions are exemplary of an indirect method whereby pH is determined using a few drops of indicator solution added to a water sample rather than by direct measurement in a reservoir. A POSITA would have understood from the specification that both direct and indirect methods would meet this claim limitation.

Applicants’ choice of the term “determining” further indicates that the scope of the disputed phrase includes both direct and indirect methods. (Ex. A at ¶¶ 61-65.) To determine the pH, the number of hydronium ions in the solution is ascertained (such as with an indicator solution). (Ex. A at ¶¶ 60, 67.) The pH is calculated using a logarithmic scale based on the number of ions. (Ex. A at ¶¶ 59-60.) Common industry methods include both direct and indirect determinations, and a POSITA would therefore read “by any method” to include both types of determination. (Ex. A at ¶¶ 60-65, 67.)

Accordingly, a POSITA would have understood the phrase to mean “determining the pH of the peracetic acid-containing water by any method.” *Eon*, 815 F.3d at 1320 (“[T]he ‘ordinary meaning’ of a claim term is its meaning to the ordinary artisan after reading the entire patent.”

(quoting *Phillips*, 4115 F.3d at 1312)).

2. Zee’s addition of “in the reservoir” is redundant.

Zee’s proposed construction should be rejected because it introduces ambiguity into the claims. Zee’s inclusion of “in the reservoir” appears to merely reiterate that the “peracetic acid-containing water” is that which was “provid[ed], in a reservoir.” This construction adds unnecessary redundancy because the only “peracetic acid-containing water” recited in the claims is that which was provided in the reservoir.³ Zee’s added redundancy serves only to create ambiguity to a claim term that was clear: the pH of the peracetic water may be determined “by any method.” (Ex. B at 32:46–49.)

3. Zee’s proposed construction limits the determination to “alkalinity and acidity,” thereby improperly excluding determination of neutral pH.

Zee’s proposed construction ignores that the pH scale includes acidic, alkaline, and neutral pHs. The pH scale ranges from 0 to 14, with 7 being neutral. (Ex. A at ¶¶ 58-60.) Zee’s proposed construction to replace “pH” with “alkalinity and acidity” is therefore scientifically incorrect.⁴ (Ex. A at ¶ 66.) Because the pH of the peracetic acid-containing water could be 7.0, a POSITA would have understood that determining pH would include determining that the pH is neutral. *Id.*

Zee’s proposed construction is inconsistent with a POSITA’s understanding of “determining pH” because there are other measurements of alkalinity and acidity besides pH. One such determination is total titratable acidity (TTA). (Ex. A at ¶ 67.) TTA is based on both unbonded

³ A requirement in patent law is that the claims must provide an antecedent basis for any term that is introduced. *In re Skvorecz*, 580 F.3d 1262, 1268–69 (Fed. Cir. 2004). Accordingly, by “providing, in a reservoir, *a* peracetic acid-containing water” in the first recited step, any subsequent reference to “*the* peracetic acid-containing water” refers back to that peracetic acid-containing water that was provided in the reservoir. And the second determining step already states “in the reservoir,” further compounding the redundancy in Zee’s proposal.

⁴ Zee’s proposed construction is also contradictory with Zee’s other proposed construction for “altering the pH of the peracetic acid-containing water.” If pH needs construing in the “determining” term, why does pH not also need to be construed in the “altering” term?

and bonded ions in the solution, whereas pH is based on the unbonded ions. Although both determine the amount of ions present in the solution indicative of acidity, alkalinity, or neutrality, they do so in different ways. *Id.* TTA is used primarily to represent sensory perception (e.g., taste and smell) and provides little information relevant to poultry processing. *Id.* Zee’s proposal to change the word “pH” to “alkalinity and acidity” is inconsistent with the plain and ordinary meaning of “determining pH” because it captures other categories of determining acidity, alkalinity, or neutrality. *Id.* Such a construction is not supported by the specification and potentially creates various § 112 issues. *See Geneva*, 349 F.3d at 1384 (rejecting a proposed claim construction because the proposed construction would have rendered the claim indefinite). Moreover, Zee’s proposed construction introduces ambiguity where no ambiguity existed in the original claim term.

**C. “altering the pH of the peracetic acid-containing water to a pH of about”
[respective claimed pH range]**

Enviro Tech’s Proposed Construction	Zee’s Proposed Construction
Adjusting ⁵ the pH of the peracetic acid-containing water to a pH of about [respective claimed pH range]	Raising the acidic pH of the peracetic acid-containing water in the reservoir to an alkaline pH of [the respective claimed pH range]

1. Enviro Tech’s proposed construction conforms to the plain meaning.

Enviro Tech’s proposed construction adopts the plain meaning of the claim term with one alteration: “altering” is replaced with “adjusting.” Thus, although plain on its face, the use of “adjusting” provides additional clarity to the jury.

⁵ After further consideration subsequent to filing the Joint Claim Construction and Prehearing Statement (ECF 59), Enviro Tech decided to switch from “increasing” to “adjusting” to more accurately reflect the plain meaning of the claim term. Upon realizing the need to make this change, Enviro Tech promptly notified Zee to the change, to which Zee consented.

2. Zee’s proposed construction improperly reads out the term “about” from the disputed phrase.

The claims expressly recite “altering the pH of the peracetic acid-containing water to a pH of *about*” the respective claimed pH range. Consistent with the claim language, the specification repeatedly describes pH ranges using the term “about.” (*See, e.g.*, Ex. B at 29:61-62, 30:22-23, 30:45-50, 31:24-25, 32:14-22, 32:43-33:15, 33:44-34:14, 34:22-62, 36:9-48, 37:23-62, 38:17-25.) Zee’s proposed construction contradicts the intrinsic evidence by improperly limiting the claims to exact pH ranges. The Federal Circuit has repeatedly emphasized that, absent evidence to the contrary, “about” “should be given its ordinary meaning of ‘approximately.’” *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1369–70 (Fed. Cir. 2005) (describing construing “about” as “exactly” as “radically redefining what is meant by ‘about’”); *cf. Card-Monroe Corp. v. Tuftco Corp.*, 2016 WL 3212085, at *4–7 (E.D. Tenn. June 9, 2016) (discussing cases addressing the construction of “about” in concluding that “substantially,” “approximately,” and “substantially hidden” should be given their ordinary meanings).

3. “Raising the acidic pH... to an alkaline pH” creates limitations not required by the plain language or any other intrinsic evidence.

Nothing in the claims requires that the pH be raised from an acidic pH to an alkaline pH, and nothing in the intrinsic evidence supports such a construction. Again, Zee seeks to import limitations in an apparent attempt to manufacture a non-infringement position. The plain language of the claims, in view of the intrinsic evidence, demonstrates that this element would be met by adjusting the pH from an alkaline pH, e.g., 7.2, to a higher alkaline pH, e.g., 9.0, or by lowering the pH from an alkaline pH, e.g., 11, to a lower alkaline pH, e.g., 9.0. (Ex. A at ¶ 72.) Zee’s proposed construction would improperly exclude such adjustments from the scope of the claims.

Enviro Tech’s construction is consistent with the specification. The specification discloses adjusting the pH from an alkaline pH to a more alkaline pH prior to placing the poultry carcass in

the peracetic acid-containing water. (*See, e.g.*, Ex. B at 39:22-24 (Table XX) (7.86 to 8.96 and 7.84 to 10.04); 41:44-52 (7.36 to 9); 52:48-56 (5.1 to 9.2); 55:56-63 (7.4 to 9.1).) The specification also discloses adjusting the pH from an alkaline pH to a more alkaline pH after placing the poultry carcass in the peracetic acid-containing water to maintain a target pH of at least 9.0. (Ex. B at 44:6-8 (“The pH was periodically measured. The pH was altered at 150 minutes from 8.6 to 9.2, using sodium hydroxide 50% (3.64g).”)) This is consistent with the specification’s disclosure of an automated embodiment of the method, where “[i]f the pH input is different from the set point pH, then the controller directs the pump to deliver the appropriate amount of . . . a source of akali [sic] to the PAA-containing water in the reservoir in order to alter the pH to the set point pH.” (Ex. B at 38:12-16). Zee’s additional requirement of raising the pH from “acidic” to “alkaline”⁶ is therefore divorced from a reading of the entire specification.

4. Zee’s addition of “in the reservoir” is redundant.

As discussed in the context of the “determining” term, adding “in the reservoir” is redundant, serving only to confuse the jury. *Supra* Section IV.B.2.

D. “after the step”

Enviro Tech’s Proposed Construction	Zee’s Proposed Construction
Plain and ordinary meaning: subsequent to	STEP ORDER – This term requires each of the steps recited must be performed in the order written.

Enviro Tech believes “after the step” is clear on its face but proposes “subsequent to” as providing further clarification for the jury.⁷ Although Zee identified “after the step” as needing construction, it has never explained to Enviro Tech why. Yet again, it appears that Zee wishes to

⁶ The addition of “to an alkaline pH” is also unnecessarily redundant because the claimed pH ranges are alkaline.

⁷ And in fact, Counsel’s word processing software has repeatedly suggested replacing “subsequent to” with “after,” stating that “[m]ore concise language would be clearer for your reader.”

import limitations to manufacture a non-infringement position. For example, Zee has stated to its customers that its proprietary method does not infringe because “the claimed method has five (5) specific steps that must be performed in chronological order.” (Dkt. No. 32-4.) But nothing in the claim excludes continuous processes or the performance of intervening steps. Thus, to the extent a dispute exists as to the scope of “after the step,” the Court should resolve that dispute by adopting Enviro Tech’s proposed construction of “subsequent to.” *See O2 Micro*, 521 F.3d at 1360; *Eon*, 815 F.3d at 1318–20.

1. Enviro Tech’s proposed construction conforms to the plain meaning.

The claims are clear on their face: some of the steps must occur after, or subsequent to, another listed step. The claims do not include qualifications creating further limitations excluding continuous processes or intervening steps such as “immediately after the step,”⁸ “only after step,”⁹ or “after step X but before step Y.”¹⁰ For example, step [c] of claim 1 recites “after the step of determining the pH and altering the pH . . . placing into the peracetic acid-containing water at least a portion of a poultry carcass.” The plain language for this element stands for the unexceptional idea that at some point after step [b] at least a portion of the poultry carcass should be added. Nothing in this language excludes other steps from happening before, after, or between steps [b] and [c]. *Baxalta*, 972 F.3d at 1345 (“Nothing in the plain language of claim 1 limits the term ‘antibody’ to a specific antibody . . .”). For example, an operator could check and correct the water level in the tank, test water flow rates within the tank; evaluate water flow to reduce eddy

⁸ *Medtronic, Inc. v. Guidant Corp.*, No. CIV.00-1473 MJD/JGL, 2004 WL 1179338, at *40 (D. Minn. May 25, 2004).

⁹ *Single Chip Sys. Corp. v. Intermec IP Corp.*, No. CIV. 04CV1517JAHBLM, 2006 WL 6145819, at *12 (S.D. Cal. Apr. 18, 2006).

¹⁰ *Warner Chilcott Co., LLC v. Zydus Pharms. (USA) Inc.*, No. CA 11-1105-RGA, 2013 WL 1729383, at *1 (D. Del. Apr. 22, 2013).

formation depending upon the size of the tank; check water temperature to ensure the PAA water is not ‘warm’ and losing efficacy; measure organic material or solids within the PAA water, and many other steps. (Ex. A at ¶¶ 82.) After many of these steps, an operator would then need to reperform the determining and adjusting steps.

Construing “after the step” to require a specific, exclusive order that must be completed beginning to end without any intervening steps improperly creates limitations and directly contradicts the patent. *See Walker Digital, LLC v. Google Inc.*, No. CV 11-318-LPS, 2013 WL 3876002, at *6 (D. Del. July 25, 2013). When a method recites an exclusive order of steps, claims typically include additional language, such as “immediately after the step,” “only after step,” or “after step X but before step Y.” (Ex. A at ¶ 84). Moreover, creating these additional limitations would “essentially seek to turn this claim into a ‘consisting essentially of’ claim” rather than a “comprising” claim. *Genesis Alkali Wyoming, LP v. Ciner Resources LP*, No. 18-1879-LPS-JLH, 2020 WL 6054891, at *8 (D. Del. Oct. 14, 2020) (report and recommendation, Mag. J. Hall).¹¹

The dependent claims confirm this understanding because they recite that steps such as the determining steps “are performed continuously.” (Ex. B at claims 5, 6, 14, 15, 21, 22, 26, 27, 31, 32). The Federal Circuit has explained that “[o]ther claims of the patent in question . . . can also be valuable sources of enlightenment as to the meaning of a claim term.” *Phillips*, 415 F.3d at 1314. “[C]laim terms are normally used consistently throughout the patent,” and “[d]ifferences

¹¹ The transition “comprising” at the end of the preamble signifies that “the body of the claim is open.” *Crystal Semiconductro Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1348 (Fed. Cir. 2001). This open nature means that “additional steps may be performed in carrying out a claimed method.” *Smith & Nephew, Inc. v. Ethicon, Inc.*, 276 F.3d 1304, 1311 (Fed. Cir. 2001). The transition “consisting essentially of” signifies a partially open claim. *PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998) (“By using the term ‘consisting essentially of,’ the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention.”).

among claims can also be a useful guide in understanding the meaning of particular claim terms.” *Id.* This idea follows naturally from the axiomatic principle that “[a]n independent claim impliedly embraces more subject matter than its narrower dependent claim.” *Intamin*, 483 F.3d at 1335. Thus, even if “after the step” could be read in a more limiting way, “[t]he dependent claims confirm that [after the step] is not so limited.” *Baxalta*, 972 F.3d at 1345.

The specification likewise confirms this understanding. The specification is the “single best guide to the meaning of a disputed term” and “[u]sually, it is dispositive.” *Phillips*, 415 F.3d at 1312–15. It provides this important context so that the terms are not merely applied “in the abstract.” *Eon*, 815 F.3d at 1320. The ’321 patent specification discloses that “it is preferable to perform [the determining and altering steps] more than once, and [it is] most preferable to perform it continuously.” (Ex. B at 37:63-66). This shows that the general scope of the method described includes the preferred embodiment—the continuous processes. This is consistent with the structure of the independent and dependent claims: the broader disclosure is for the method in general with the dependent claims noting that one embodiment is for the method to be continuous.

The prosecution history does not contradict this meaning. The “after the step” phrases were added in an Examiner’s Amendment dated July 27, 2016, that lacks any characterization of “after the step.” (Ex. C at 629–34.) The summary of the examiner interview states that it was the “[d]eclarations under 37 C.F.R. 1.132 . . . [that] were sufficient to overcome the rejection of record.” (Ex. C at 633–34.) The reason for allowability says only that the prior art reference of the prior art rejection does not disclose the claimed method, paraphrasing the claim:

Kurschner et al is silent as to the pH adjustment step that is performed after contacting a poultry carcass with a peracetic acid-containing water as recited in claims 19, 32, 43 and 50. Kurschner et al is also silent as to the determining the pH of the peracetic acid-containing water in the reservoir with at least the portion of the poultry carcass therein, after the step of placing at least the portion of the poultry carcass into the peracetic acid-containing water. Kurschner et al is silent as to the

then altering the pH of the peracetic acid-containing water containing at least the portion of the poultry carcass to a pH of about 7.6 to about 10, if the pH is determined to be lower than about 7.6 or higher than about 10.

(Ex. C at 632–34.)¹² Nothing in the prosecution history suggests the examiner’s addition of “after the step” was needed to overcome the prior art. Accordingly, nothing in the intrinsic evidence contradicts the plain and ordinary meaning of “subsequent to.”

To the extent it seeks to exclude continuous processes or intervening steps, Zee’s proposed construction ignores the context in which the ’321 patent was prosecuted. A POSITA would have considered commercial processes and understood that such processes fall within the scope of the claims and specification. For example, as the ’321 patent notes with respect to Example 24, a “major U.S. processor of poultry” owned a plant that “processed about 200,000 or more birds per day.” (Ex. B at 58:19-24.) A POSITA would have understood that, throughout a day, practice of the described embodiment would have resulted in the pH of the peracetic-acid containing water being determined and altered both prior to and subsequent to the step of “placing into the peracetic acid-containing water at least a portion of a poultry carcass.” (Ex. B at 60:24-47.) This is because, to process 200,000+ birds in a day, poultry carcasses must continuously enter and exit the chiller tank, in which they typically remain for anywhere from 45 minutes to over three hours. (Ex. B at 5:16-20; Ex. A at ¶¶ 31.) Accordingly, to maintain the elevated pH of the chiller tank water, its pH would have been determined and altered both prior to and subsequent to at least a subset of the 200,000+ poultry carcasses placed in the chiller tank.

¹² The examiner’s replacement of “after the step” with “then” does not suggest any limitation beyond the plain and ordinary meaning of “after the step” and aligns with Enviro Tech’s proposed construction.

2. Zee's proposed construction is not a proper claim construction.

Zee's construction is not a claim construction at all and will only serve to confuse the jury. Zee does not propose a definition that can be read into the claim. Instead, it essentially urges the Court to supply the jury with a vague and ambiguous rule whereby the jury—not the Court—will construe the claim in the first instance. That is improper.

Zee's proposed construction violates Federal Circuit precedent. The Federal Circuit has instructed that “[i]t is critical for trial courts to set forth an express construction of the material claim terms in dispute, in part because the claim construction becomes the basis of the jury instructions, should the case go to trial.” *AFG Indus., Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1247 (Fed. Cir. 2001). As one district court explained, “[i]n the end, claim construction must result in a phraseology that can be taught to a jury of lay people. It is not enough simply to construe the claims so that one skilled in the art will have a definitive meaning.” *Control Resources, Inc. v. Delta Elecs., Inc.*, 133 F. Supp. 2d 121, 127 (D. Mass. 2001). A proper claim construction interprets the disputed term and provides phraseology that communicates a definitive meaning for the jury to use. In other words, “[t]he claims must be translated into plain English so that a jury will understand.” *Control Resources*, 133 F. Supp. 2d at 127 (D. Mass. 2001); *Johnson Safety, Inc. v. Voxx Int’l Corp.*, No. 5:14-cv-02591, 2016 WL 6781115, at *15 (C.D. Cal. Nov. 16, 2016) (rejecting a party’s construction because it was “not worded in a way that could stand in for the existing claim language and make grammatical sense” because “[s]uch a construction would likely serve to confuse jurors”). A vague and ambiguous rule on how to interpret the claims, such as Zee’s proposed construction, does meet the Federal Circuit’s requirements for a claim construction. This Court should reject Zee’s proposed construction because it fails to provide the requisite guidance to the jury.

V. CONCLUSION

For the foregoing reasons, the Court should adopt Enviro Tech's proposed claim constructions for each of the disputed claim terms. Enviro Tech's proposed constructions give effect to the full scope of the ordinary and customary meaning of the claim terms, as supported by the intrinsic evidence. Zee's proposed constructions, on the other hand, attempt to read various limitations into the claims contrary to the ordinary customary meaning of the claim terms as evinced by the intrinsic evidence viewed in its entirety. Ultimately, claim construction is intended to provide guidance to the jury in its analysis. Enviro Tech's proposed constructions provide the necessary guidance to the jury and give full effect to the claim terms. The Court should accordingly adopt Enviro Tech's proposed constructions.

Dated: April 1, 2022

Respectfully submitted,

/s/ Seth R. Ogden

Seth R. Ogden (BPR 034377)

Ryan D. Levy (BPR 24568)

Nathan I. North (BPR 39068)

Patterson Intellectual Property Law, P.C.

Roundabout Plaza, Suite 500

1600 Division Street

Nashville, TN 37203

(615) 242-2400

(615) 242-2221

sro@iplawgroup.com

rdl@iplawgroup.com

nin@iplawgroup.com

*Attorneys for Defendant/Counterclaimant
Enviro Tech Chemical Services, Inc.*

CERTIFICATE OF SERVICE

I hereby certify that a true and exact copy of the foregoing ENVIRO TECH CHEMICAL SERVICES, INC.'S OPENING CLAIM CONSTRUCTION BRIEF has been served via CM/ECF, this 1st day of April 2022, upon the below-listed counsel at the following addresses:

Adam E. Szymanski
PATTERSON THUENTE IP
80 South Eighth Street
4800 IDS Center
Minneapolis, MN 55402
(612) 349-5761
szymanski@ptslaw.com

Eric H. Chadwick
Zachary P. Armstrong
DEWITT LLP
901 Marquette Avenue
Suite 2100
Minneapolis, MN 55402
ehc@dewittllp.com
zpa@dewittllp.com

James S. McDearman
Grant, Konvalinka & Harrison, PC
633 Chestnut Street
Suite 900 One Republic Centre
Chattanooga, TN 37450
(423) 756-8400
smcdearman@gkhpc.com

/s/ Seth R. Ogden

Seth R. Ogden